



(11) **EP 1 383 070 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
13.12.2006 Bulletin 2006/50

(51) Int Cl.:
G06K 7/14 (2006.01)

(43) Date of publication A2:
21.01.2004 Bulletin 2004/04

(21) Application number: **03015490.0**

(22) Date of filing: **09.07.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR
 Designated Extension States:
AL LT LV MK

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(30) Priority: **18.07.2002 JP 2002210211**

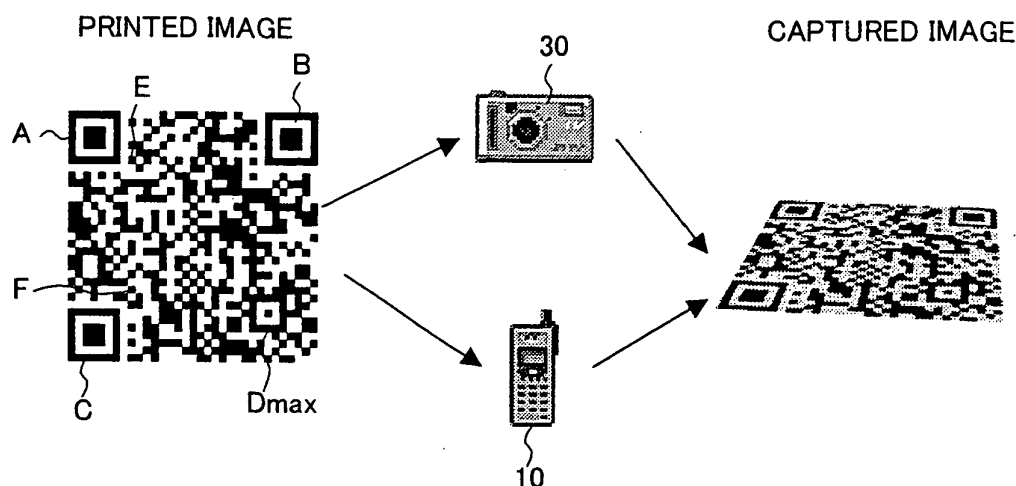
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(54) **Two-dimensional code reading method for portable terminal with digital camera**

(57) Coordinate positions of four points including three position detecting element patterns and an indexing pattern are detected from a two-dimensional code image captured (S11), the two-dimensional code size is determined (S12), coefficients of equations for determining coordinate positions corresponding to center positions of respective cells compensated for inclination of the image by adding depth information are determined (S13), the coordinate positions of respective cell center positions are determined according to the calculation equa-

tions by applying the determined coefficients (S14), brightness/darkness is discriminated from image data corresponding to the respective cell center positions and binary data (0 or 1) for respective cells are generated (S15), information of the two-dimensional code is reproduced based on the binary data (S16). The equations are expressed by recurrence formulas. The coefficients determined from the coordinate positions of 4 points of the two-dimensional code are divided by the same constant to make them integers.

FIG.6



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European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 01 5490

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 612 524 A (SANT ANSELMO CARL [US] ET AL) 18 March 1997 (1997-03-18) * column 2, line 15 - column 4 * -----	1,5,8	INV. G06K7/14
			TECHNICAL FIELDS SEARCHED (IPC)
			G06K
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 November 2006	Examiner de Ronde, Jan
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03/92 (P04/C01)

02-11-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5612524	A	18-03-1997	NONE

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82